AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

Amendments shown by strikethrough (for deleted matter) or underlining (for added matter).

1 (Cancelled).

2. (Currently amended): A sensor arrangement according to claim 43, wherein ~~1, characterised in that~~ the flow cell element ~~(14)~~ is removable.

3. (Currently amended): A sensor arrangement according to claim 43, wherein ~~1 or 2, characterised in that~~ said elastic material has a hardness of 10-95° Shore.

4. (Currently amended): A sensor arrangement according to claim 3, characterised in that said elastic material has a hardness of 45-95° Shore.

5. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of claims 1-4, characterised in that~~ the first part ~~(8)~~ is arranged to move slidably with relation to the second part ~~(11,12)~~, so that the quartz crystal ~~(32)~~ comes into abutment with the flow cell element in the second part ~~(11,12)~~.

6. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of the preceding claims, characterised in that~~ the first part ~~(8)~~ is guided between said closed and open positions by means of guide rods ~~(28)~~.

7. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of the preceding claims, characterised in that~~ the first part ~~(8)~~ is guided along a linear path.

8. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of the preceding claims, characterised in that~~ the means ~~(9)~~ for receiving the

sensor element ~~(10)~~ has a cavity provided with a slot ~~(16)~~, through which the sensor element can be inserted and an opening ~~(17)~~ through which the crystal of the sensor element can come into contact with the flow cell element ~~(14)~~.

9. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of the preceding claims, characterised in that~~ the second part ~~(11, 12)~~ comprises ~~an~~ a sample providing part ~~(11)~~ that has a recess in which the flow cell element ~~(14)~~ is arranged and an operating part ~~(12)~~ that includes means ~~(23,24)~~ for movement of said first part ~~(8)~~.

10. (Currently amended): A sensor arrangement according to claim 9, wherein ~~characterised in that~~ the means ~~(23,24)~~ for movement of said first part ~~(8)~~ includes a screw ~~(23)~~ which is connected by thread engagement to the first part ~~(8)~~ and which is operated by a handle ~~(24)~~.

11. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of the preceding claims, characterised in that~~ the second part is provided with electrical contacts ~~(22)~~ for connection with electrical contact areas on the sensor element.

12. (Currently amended): A sensor arrangement according to claim 11, wherein ~~characterised in that~~ the electrical contacts ~~(22)~~ are spring loaded contacting pins.

13. (Currently amended): A sensor arrangement according to claim 11, wherein ~~or 12, characterised in that~~ the electrical contacts ~~(22)~~ are arranged on the sample providing part ~~(11)~~.

14. (Currently amended): A sensor arrangement according to claim 43, wherein ~~any one of the preceding claims, characterised in that~~ the recess ~~(45)~~ of the flow cell element has a shape that corresponds to the shape of the first electrode ~~(33)~~.

15. (Currently amended): A sensor element for use in the piezoelectric sensor arrangement of claim 1, comprising ~~characterised in that it comprises~~ a carrier ~~(31)~~ to which a piezoelectric quartz crystal ~~(32)~~ is attached, wherein

said crystal has ~~having~~ a front side and a rear side; ~~, where~~

said front side is intended to come into contact with the fluid sample and is provided with a front electrode ~~(33) and~~ ;

said rear side is provided with a rear electrode ~~(42), both electrodes being~~ said front electrode and said rear electrode are adapted to receive electric signals for generation of an oscillating motion of the crystal~~, whereby~~ ;

the crystal is arranged on the carrier so ~~in such a manner~~ that the front side of the crystal ~~(32)~~ and the front electrode ~~(33)~~ are freely accessible~~,~~ and said front side of the crystal and said front electrode are adapted to come into abutment with a ~~the~~ flow cell element ~~(14)~~ of the piezoelectric sensor arrangement ~~(4),~~ when ~~the~~ first ~~(8)~~ and second ~~(11,12)~~ parts of the piezoelectric sensor arrangement ~~(4)~~ are moved from an ~~their~~ open position to a ~~their~~ closed position~~, whereby it~~ ; and

the crystal sealingly covers a ~~the~~ recess ~~(45)~~ of the flow cell element when said first and second parts of the piezoelectric sensor arrangement are in a closed position to form ~~, thus forming~~ a flow cell ~~(50)~~ together with the flow cell element.

16. (Currently amended): A sensor element according to claim 15, wherein ~~characterised in that~~ the electrodes ~~(33,42)~~ are electrically connectable to external contacts ~~(22)~~.

17. (Currently amended): A sensor element according to claim 15, wherein ~~or 16, characterised in that~~ the piezoelectric crystal is arranged in the carrier such that the piezoelectric crystal is supported by the carrier from the rear side during abutment of the flow cell element.

18. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-17, characterised in that~~ the carrier has the shape of a plate, having a surface area of 1-100 cm^2~~, preferably 5-30 cm^2 and more preferably 10-20 cm^2~~.

19. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-18, characterised in that~~ the thickness of the carrier is 0.5-10 ~~0,5-10~~ mm.

20. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-19, characterised in that~~ the surface area of each electrode ~~(33,42)~~ is smaller than the surface area of the crystal ~~(32)~~, such that each side of the crystal comprises an area between the electrode edge and the crystal periphery that is not covered by electrode material and that each electrode has a connecting portion ~~(33a, 42a)~~ that extends towards the crystal periphery.

21. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-20, characterised in that~~ the carrier comprises a front part ~~(34)~~ and a rear part ~~(35)~~, between which the crystal ~~(32)~~ is attached, said front part being provided with an opening ~~(36)~~ for exposure of the crystal.

22. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-21, characterised in that~~ the carrier comprises a recess ~~or opening~~ in the area of the rear electrode ~~(42), so as to avoid~~ to prevent damping of the crystal.

23. (Currently amended): A sensor element according to claim 20, wherein ~~any one of claims 20-22, characterised in that~~ electrical contacting means ~~(40)~~ are connected to the electrodes at the connecting portions ~~(33a, 42a)~~ of the electrodes.

24. (Currently amended): A sensor element according to claim 20, wherein ~~any one of claims 20-23, characterised in that~~ externally accessible electrical contacting areas ~~(37)~~ are provided on the carrier~~, which~~ and said electrical contacting areas are electrically connected to the contacting portions ~~(3-3-a, 42a)~~ of the electrodes.

25. (Currently amended): A sensor element according to claim 24, wherein ~~characterised in that~~ the electrical contacting areas ~~(37)~~ are situated on the front part ~~(34)~~ of the carrier.

26. (Currently amended): A sensor element according to claim 20, wherein ~~any one of claims 20-25, characterised in that~~ the connecting portion ~~(42a)~~ of the rear electrode ~~(42)~~ reaches the front side of the crystal~~, so that~~ and both electrodes are accessible from the front side of the crystal.

27. (Currently amended): A sensor element according to claim 20, wherein ~~any one of claims 20-25, characterised in that~~ the carrier comprises an opening in the area of the rear electrode; ~~(42) and~~ the connecting portion ~~(33a)~~ of the front electrode ~~(33)~~ reaches the rear side of the crystal; and ~~, so that~~ both electrodes are accessible from the rear side of the crystal.

28. (Currently amended): A sensor element according to claim 26, wherein ~~or 27, characterised in that~~ the connecting portions ~~(33a, 42a)~~ are accessible to external contacts.

29. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-28, characterised in that~~ the front electrode ~~(33)~~ is coated with an active substance for analysis of the sample.

30. (Currently amended): A sensor element according to claim 15, wherein ~~any one of claims 15-29, characterised in that~~ a removable protecting foil covers ~~is arranged so as to cover~~ the crystal.

31. (Currently amended): A sensor element according to claim 30, wherein ~~characterised in that~~ the removable protecting foil is resealable.

32. (Currently amended): A flow cell element ~~(14)~~ for use in the piezoelectric sensor arrangement of claim 43, comprising: ~~1 characterised in that it comprises~~

an abutting part ~~(43), which is provided with~~ comprising an outwardly open recess ~~(45) and~~, inlet fluid channels, and outlet fluid channels ~~(46) by means of which a fluid sample can be lead through the recess~~, wherein

said inlet fluid channels and said outlet fluid channels lead the fluid sample through said recess;

said recess ~~(45) being~~ is surrounded by an abutting surface ~~(48), at least~~ ;

said abutting surface and a ~~the~~ portion of the abutting part ~~(43)~~ closest to the abutting surface comprise ~~being made of~~ an elastic material~~, wherein~~ ;

said abutting part ~~(43)~~ is adapted to come into abutment with the piezoelectric quartz crystal ~~(32)~~ in a ~~the~~ sensor element ~~(10) of claim 11,~~ when ~~the~~ first ~~(8)~~ and second ~~(11,12)~~ parts of the piezoelectric sensor arrangement ~~(4)~~ are moved from ~~their~~ an open position to ~~their~~ a closed position~~, whereby the~~ ; and

said recess ~~(45)~~ is sealingly covered by the crystal, thus forming a flow cell ~~(50)~~ together with the sensor element ~~(10)~~ when said first and second parts of the piezoelectric sensor arrangement are in said closed position.

33. (Currently amended): A flow cell element according to claim 32, wherein ~~characterised in that~~ said elastic material has a hardness of 10-95° Shore.

34. (Currently amended): A flow cell element according to claim 33, wherein ~~characterised in that~~ said elastic material has a hardness of 45-95° Shore.

35. (Currently amended): A flow cell element according to claim 32, wherein ~~any one of claims 32-34, characterised in that~~ the abutting surface ~~(48)~~ that surrounds the recess ~~(45) is constituted by~~ comprises a ridge ~~(47), which has~~ having a smooth upper surface ~~(48) and that~~ ; the recess has a bottom ~~of~~ , and said bottom of the recess is a flat surface.

36. (Currently amended): A flow cell element according to claim 35, ~~characterised in that~~ the ridge ~~(47)~~ has a width of 0.05-1 ~~0,05-1~~ mm.

37. (Currently amended): A flow cell element according to claim 32, wherein ~~any one of claims 32-36, characterised in that~~ the recess has a depth of 0.01-0.5 ~~0,01-05~~ mm~~, preferably 0,05-0, 2 mm~~.

38. (Currently amended): A flow cell element according to claim 32, wherein ~~any one of claims 32-36, characterised in that~~ the inlet and outlet fluid channels ~~(46)~~ are

arranged close to the periphery of the recess and diametrically opposed to each other.

39. (Currently amended): A flow cell element according to claim 32, wherein ~~any one of claims 32-38, characterised in that~~ the recess has extensions ~~(52)~~ in which the extensions the inlet and outlet fluid channels ~~(46)~~ are arranged.

40. (Currently amended): A flow cell element according to claim 32, wherein the flow cell element is ~~any one of claims 32-39, characterised in that it is made in~~ one piece.

41. (Currently amended): A flow cell element according to claim 32, wherein ~~any one of claims 32-40, characterised in that~~ the elastic material is selected from the group consisting of polyurethane, silicone and ~~or~~ PDMS.

42. (Currently amended): A method for forming a flow cell, comprising:

~~in which~~ bringing a sensor element ~~(10)~~ having a freely accessible piezoelectric quartz crystal ~~(32) is brought~~ into abutment with a flow cell element ~~(14), which comprises~~ comprising an outwardly open recess ~~(45)~~ and inlet and outlet fluid channels configured to allow ~~(46) by means of which~~ a fluid sample to ~~can~~ be lead through the recess~~,~~ ; and

holding said sensor element and said flow cell element ~~being held~~ together by a pressing force.

43. (New): A piezoelectric sensor arrangement for analysis of at least one fluid sample, comprising:

a signal source;

a measuring device; and

a docking system comprising a first part and a second part, wherein

said first part comprises means for receiving a sensor element which sensor element comprises a piezoelectric quartz crystal having a freely accessible electrode and which electrode is positioned to contact the fluid sample when in use,

said means for receiving comprising an opening allowing said sensor element to contact a flow cell element when in use;

said second part comprises fluid channels to conduct the sample and a flow cell element;

said flow cell element comprises an abutting part provided with an outwardly open recess surrounded by an abutting surface, inlet fluid channels, and outlet fluid channels;

said inlet fluid channels and said outlet fluid channels are configured to lead the fluid sample through said recess;

said abutting surface and a portion of said abutting part closest to said abutting surface comprise an elastic material;

said elastic material is capable of forming a seal against the piezoelectric quartz crystal;

said first and second part are movable in relation to each other between a closed position and an open position;

when said first and second parts are moved from said open position to said closed position an upper surface of said abutting part of said flow cell element comes into abutment with said piezoelectric quartz crystal; and

when said first and second parts are in said closed position a seal forms between said piezoelectric quartz crystal and said recess of said flow cell element to create a flow cell.

44. (New): A sensor element according to claim 15, wherein the carrier has the shape of a plate, having a surface area of 5-30 cm^2.

45. (New): A sensor element according to claim 15, wherein the carrier has the shape of a plate, having a surface area of 10-20 cm^2.

46. (New): A flow cell element according to claim 32, wherein the recess has a depth of 0.05-0.2 mm.

47. (New): A sensor element according to claim 15, wherein the carrier comprises an opening in the area of the rear electrode to prevent damping of the crystal.